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NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

PHOTOGRAPHIC
INTERPRETATION
REPORT

MICROWAVE SYSTEM AT SARY-SHAGAN ANTIMISSILE TEST CENTER USSR

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NOVEMBER 1970
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GROUP 1: EXCLUDED FROM
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INSTALLATION OR ACTIVITY NAME					COUNTRY
Microwave System at Sary-Shagan Antimissile Test Center					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NUMBER	COMIREX NO.	NIETB NO.
NA	See Below	See Below	See Below	See Below	See Below

MAP REFERENCE

ACIC. USATC, Series 200, Sheet 0245-15, scale 1:200,000

	NEGATION DATE (If required)
	NA
	NPIC PROJECT
	250804

INTRODUCTION

1. This report updates *Microwave System at Sary-Shagan Antimissile Test Center, USSR.* [1] Twenty-two of the 23 microwave facilities given in the referenced report (Figure 1) were covered on high-resolution photography from June 1969 through July 1970. The microwave tower at the Sary-Shagan Microwave Facility 3-I (has been dismantled as of June 1970. The photogrammetrically derived coordinates given in the referenced report were remeasured; however, no refinement in accuracy could be achieved except at the Sary-Shagan Headquarters Microwave Facility. The coordinates given below are accurate to within plus-or-minus 30 seconds.

- Sary-Shagan Radio Communications and Radio Relay Station 16 (Sary-Shagan Microwave Facility 16); 47-22-42N 067-28-46E;
- Sary-Shagan Radio Relay Station 15 (Sary-Shagan Microwave Facility 15); 47-14-44N 068-22-49E;
- Sary-Shagan Radio Communications and Radio Relay Station 14 (Sary-Shagan Microwave Facility 14); 47-08-52N 069-24E;
- Sary-Shagan Radio Relay Station 13 (Sary-Shagan Microwave Facility 13); 46-59-07N 070-10-50E;
- Sary-Shagan Radio Relay Station 12 (Sary-Shagan Microwave Facility 12); 46-24-49N 072-33-46E;
- Sary-Shagan Radio Relay Station 11 (Sary-Shagan Microwave Facility 11); 46-41-31N 072-37-42E;
- Sary-Shagan Microwave Facility 10; 46-57-24N 072-30-11E;
- Sary-Shagan Microwave Facility 9; 46-52-39N 071-52-31E;
- Sary-Shagan Radio Relay Station 8 (Sary-Shagan Microwave Facility 8); 46-55-18N 070-49-47E;
- Sary-Shagan Microwave Facility 8-II : 46-55-47N 071-03-17E;
- Sary-Shagan Radio Relay Station 7 (Sary-Shagan Microwave Facility 7); 46-37-01N 070-46-52;

- Sary-Shagan Radio Relay Station 6 (Sary-Shagan Microwave Facility 6); 46-13-40N 070-54-50E;
- Sary-Shagan Radio Relay Station 5 (Sary-Shagan Microwave Facility 5); 45-54-00N 071-20-32N;
- Sary-Shagan Radio Relay Station 4 (Sary-Shagan Microwave Facility 4); 45-57-27N 072-12-55E;
- Sary-Shagan Radio Relay Station 3-II, 45-38-22N 072-37-24E;
- Sary-Shagan Communications Facility 6 (MW); 46-04-05N 073-21-58E;
- Sary-Shagan Communications Facility 5 (MW); 46-14-36N 072-56-48E;
- Sary-Shagan Communications Facility 4 (MW); 46-00-00N 071-49-16E;
- Sary-Shagan Radio Relay Station A (Sary-Shagan Launch Complex A Microwave Facility); 46-24-28N 072-52-07E;
- Sary-Shagan Complex B Microwave Facility; 46-01-06N 072-28-29E;
- Sary-Shagan Radio Relay and TV Center Main Base (Sary-Shagan Headquarters Microwave Facility); 46-01-38N 073-41-18E;
- Sary-Shagan Radio Relay and TV Center Main Base (Sary-Shagan Microwave/TV Facility); 46-02-17N 073-41-52E;

BASIC DESCRIPTION

2. No R-400 microwave dishes were observed at any of the 22 microwave facilities. All microwave elements identified were Vesna-type horns (Figure 2). Neither significant new construction nor evidence of non-usage of existing microwave equipment was noted at any of the 22 microwave facilities. Table 1 includes tower heights, antenna elements (including orientation and height), and description of miscellaneous equipment. Orientations were computed by establishing the correspondent of each facility (Figure 1).

3. An unidentified Yagi-type antenna (Figure 2) was observed atop microwave towers at microwave facilities 4, 7, 12, 13, and 16 and at communications facility 6. The antenna was mounted on a single 9-meter (30-foot) vertical support projecting from the top of the microwave tower. Two braces joined the horizontal member of the antenna, which , with the vertical support.

4. Unidentified equipment (Figure 3) was on top of the self-supporting microwave towers at microwave facilities 3-II, 6 and 10, each of which is located near a HEN EGG radome. Two additional self-supporting towers with the same unidentified equipment but with no microwave elements were observed between the ESV tracking facility and launch complex D. One tower is 3,087 meters (10,125 feet) northwest of the two ESV buildings, and the other tower is the same distance north of launch complex D. The unidentified equipment on these towers does not appear to be microwave associated and is probably for radar calibration.

5. The two self-supporting towers at the Sary-Shagan ESV Tracking Facility are not of the same design as the self-supporting microwave towers at other microwave facilities and are probably calibration towers. No additional information is available on the 51-meter (168-foot) mast southeast of the ESV building, and no microwave tower or elements were identified in the communications area northwest of the ESV facility.

Table 1. Data on the Microwave System at Sary-Shagan Antimissile Test Center
[Installation Names are NPIC Usage]

Installation	Number of Vesna-type horns	Type of Tower	Tower Height m / f	Element Height m / f	Miscellaneous Equipment
Microwave Fac 16	1	Guyed	85 280	85 280	1 empty harness, unid antenna on tower
Microwave Fac 15	2	Guyed	92 300	92 300	None
Microwave Fac 14	2	Guyed	84 275	84 275	None
Microwave Fac 13	2	Guyed	81 265	81 265	Unid antenna on tower
Microwave Fac 12	2	Guyed	52 169	49 160	Unid antenna on tower
Microwave Fac 11	4	Guyed	81 265	81 (2@) 265 40 (2@) 130	None
Microwave Fac 10	4	Self-supporting	85 280	76 (2@) 250 28 (2@) 90	Unid equipment on tower
Microwave Fac 9	2	Guyed	87 285	87 285	None
Microwave Fac 8	3	Guyed	35 115	35 115	None
Microwave Fac 8-II	2	Guyed	32 106	32 106	Undetermined
Microwave Fac 7	2	Guyed	46 150	46 150	Unid antenna on tower
Microwave Fac 6	2	Self-supporting	89 290	73 240	Unid equipment on tower
Microwave Fac 5	4	Guyed	75 245	75 (2@) 245 14 (2@) 45	None
Microwave Fac 4	4	Guyed	85 280	85 (2@) 280 76 (2@) 250	Unid antenna on tower
Microwave Fac 3-II	4	Self-supporting	87 285	82 (2@) 270 28 (2@) 90	Unid equipment on tower
Commo Fac 6 (MW)	4	Guyed	55 180	55 (2@) 180 24 (2@) 80	Unid antenna on tower
Commo Fac 5 (MW)	4	Guyed	61 200	61 (2@) 200 20 (2@) 65	None
Commo Fac 4 (MW)	4	Guyed	49 160	49 (2@) 160 15 (2@) 50	Undetermined
Launch Complex A Microwave Fac	5	Guyed	52 170	52 (2@) 170 46 (2@) 150 40 (1@) 130	Prob empty harness
Launch Complex B Microwave Fac	3	Guyed	67 220	67 220 52 (1@) 170	1 empty harness
Headquarters Microwave Fac	5	Guyed	28 90	(2@) 28 90 12 (3@) 40	None
Microwave TV Fac	0	Self-supporting	183 600	NA	12 empty harnesses

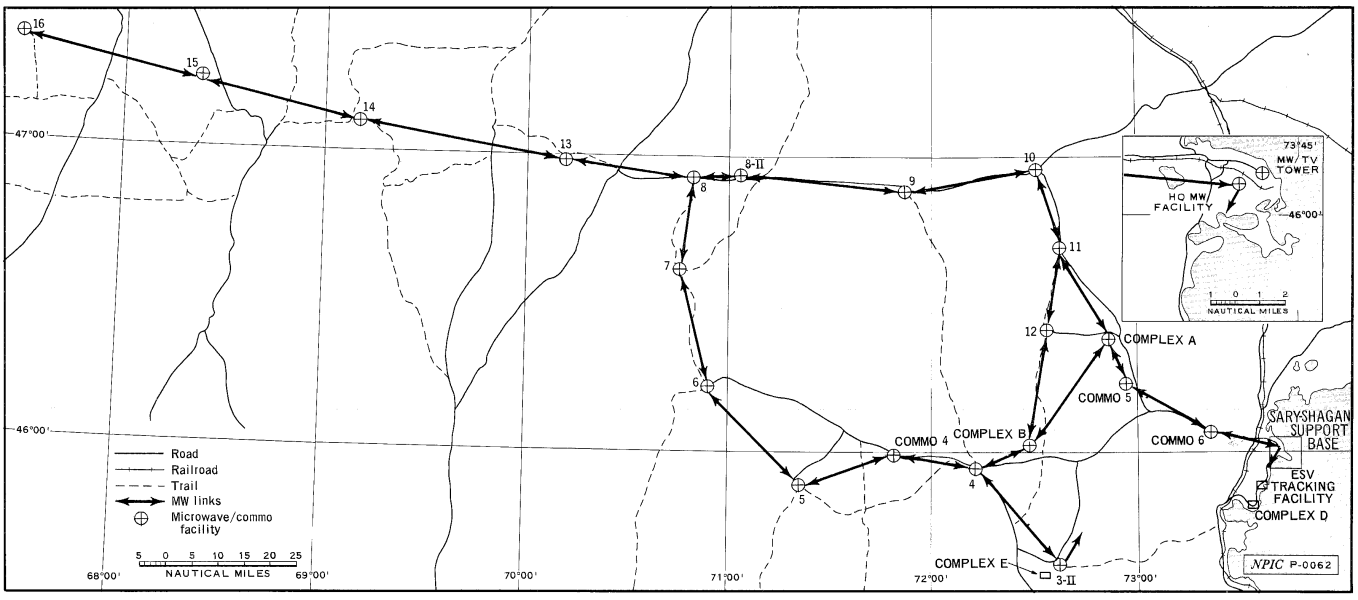

FIGURE 1. LOCATION MAP

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6. No microwave elements were identified at Sary-Shagan R&D Facility 1 25X1
at Sary-Shagan R&D Facility 2 or at Sary-Shagan Launch 25X1
Complex D A guyed high tower is immediately east 25X1
of launch complex D. radome was on top of the tower and a 25X1
calibration dish was attached to the tower beneath the radome. Fourteen rectangular footings for guy wires are spaced around the tower. Another similar tower was under construction northwest of the complex.

7. A rectangular building and four smaller buildings are in a secured area, 1 nautical mile (nm) north of microwave facility 13. No relationship between this secured area (facility 13-1) and the microwave facilities was established. The exact function of these buildings is undetermined.

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DOCUMENT

1. NPIC. [redacted] *Microwave System at Sary-Shagan Antimissile Test Center, USSR,* Jun 69 (TOP SECRET RUFF)

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